



# The Benefits to Families of Taking a More Structured View of Risk

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Most families, like many portfolio managers, invest a great deal of time and energy into understanding the potential return streams from their investments. This paper explores the benefits of allocating some of that focus and energy to better assessing the risks that they may be assuming. The benefits of taking a more structured view of risk can extend well beyond portfolio performance to include more confident decision making, enhanced alignment between the stakeholders and a calmer mindset during turbulent markets.

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## Introduction

As a serial entrepreneur who sold his last business in 2008, today I look at risk much more holistically. For me, risk is no longer just about portfolio volatility. Risk, and proactively planning for it, is something that I now accept as a variable that can impact everything from inter-family relationships to the ability to confidently plan for the future.

Before I go any further, some quick background may be helpful since that history is the prism through which I view the topic of this paper. In 1985 I founded an investment firm that allocated capital to Commodity Trading Advisors, hedge funds and options traders. As an early entrant into the Alternative Investments industry, I realized quickly that the existing technology solutions required to confidently scale up my business were not mature enough to meet our needs. I was forced to build a technology team along with comprehensive back and middle-office operations that were incredibly efficient but ultimately proved too expensive to be supported by a single small firm. In 1997, I spun out the infrastructure group into an external service provider to share the overhead with other managers. Both businesses were quite successful. I sold the investment firm in 2000 and the technology company in 2008. So my prism is comprised of three decades in alternatives, first as an investment manager and then as the CEO of a technology-intensive service provider.

Given my background, I felt well equipped to manage my own portfolio after selling my last business. I had also recognized that my priorities had shifted from creating wealth to preserving it. I also decided that after 30+ years

in financial services and their enabling technologies that I did not want my portfolio to define how I spent my days. My wife and I have a lot of travel plans and I am an avid motorcyclist who loves to ride all over the world. I had no interest in sitting in front of a screen all day which meant that I needed to outsource the actual business of trading to third-party managers (which I already knew how to do and was comfortable delegating).

Assuming that I selected talented managers with viable strategies, I was confident that, over time, the returns would take care of themselves (no individual strategy is a winner all the time). I was however much more focused on understanding the risks that I was assuming not only in each separate account, but also at the aggregate portfolio level. Not understanding your risks can be corrosive to both your confidence in your selected strategies and your ability to stay committed through the inevitable drawdowns. Separately, not having alignment with other family stakeholders about the level of risk we can tolerate as a family can grow into an unnecessary source of stress in other parts of our lives and negatively impact future decision-making.

My perspective on analyzing risk is anchored on three (3) core assumptions:

- 1) No single measure of risk reliably models risk all the time in all market environments and for all portfolio types
- 2) I am not smart or lucky enough to pick the “correct” risk model for my portfolio on a daily basis
- 3) Even if, by some amazing random chance, I did select the right risk

model for a particular day, I am not smart or lucky enough to consistently pick the right parameters to use with that model on a daily basis (examples of parameters include confidence levels, sampling periods, assumptions about volatility, etc.).

So when your core assumptions about solving a problem revolve around not being lucky or smart, you then have to find a path to success that is not dependent on those two traits. As a former investment manager and technology entrepreneur, I had a reasonable knowledge of the available risk modeling tools and I was comfortable with applying technology to solve business challenges. My solution to this problem was not subtle. I decided to harness technology brute force to chew through a broad range of risk modeling and stress testing techniques while applying a wide range of parameters to each model, logging the results for each processing cycle and finally delivering the end results into a graphic presentation that my brain can assimilate in fifteen minutes (or less) each day. This brute force approach had the benefit of reducing my dependency on picking the “right” models and parameters and provided a very broad view of risk (I will explain why a “broad” view is important below).

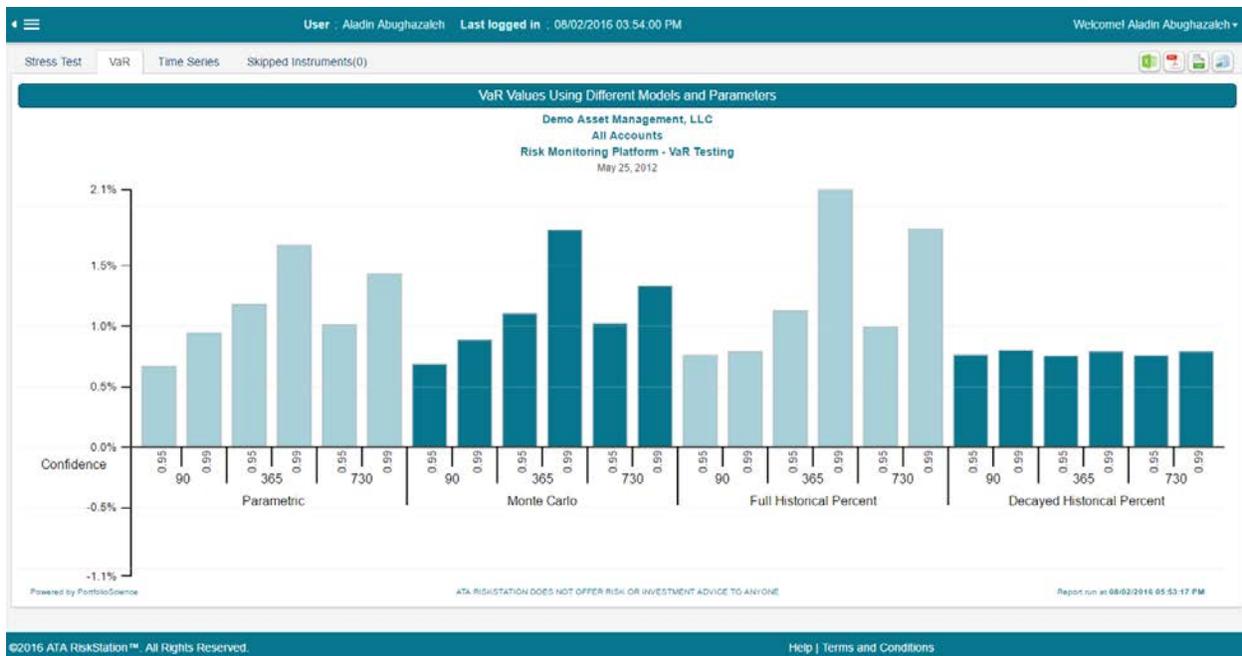
With the approach above defined in my mind, the next step was to find an existing commercially available risk solution that delivered the required functionality and ease of use at a price that I was willing to pay. The short version is that I struck out on all three fronts. It became clear to me however that if I

was willing to park the motorcycles for a while, I did have the time with no adult supervision to design and build the risk platform I envisioned. A few thousand hours later, I had the system I wanted. While at times it felt suspiciously close to work, I enjoyed the process very much.

Below are some examples of the output that I was looking for on a daily basis.

## Value at Risk (“VaR”)

The VaR concept has been around a long time and today enjoys wide acceptance by financial institutions, regulators and institutional investors. There are many VaR models but each model makes assumptions that may or may not hold true at the worst possible time. Those assumptions can be about how the data is distributed, the stability of those distributions, the stability of the correlations between the various portfolio holdings or any number of other factors. Again, all those models will utilize parameters that may or may not be optimally selected for a particular portfolio on a particular day. The bottom line is that we are now back to the problem of needing to always be lucky or smart to select the “right” models and parameters. The chart below helps me overcome this problem by displaying twenty-four VaR scenarios in one graph. Since I can quickly identify the outliers on one page (to assess if I can tolerate those outcomes in the event they actually came to pass) my review can be very quick. If I ever see a scenario that makes me nervous, the system allows me to quickly drill down to the instrument-level analytics so I can better understand my risk drivers.



No matter how many VaR scenarios I reviewed each day, the reality was that each and every VaR model made assumptions (or used parameters) that in some way limited the range of potential downside outcomes that I can see on the chart. To *really* scare myself, I needed to jump into stress testing.

## Stress Testing

I think of stress testing as way to automate the re-running of my nightmares on a daily basis. Why would a sane person want to do that? The answer is simple. If your portfolio configuration can successfully withstand some extreme stress scenarios (like Black Monday in October 1987, the 9/11 attacks, the Flash Crash, etc.) and survive reasonably intact, the knowledge from

that advance testing and family stakeholder alignment make it much easier to maintain confidence in an investment plan so emotions don't begin driving decision-making during turbulent markets.

The chart on the next page displays the impact of various shocks to gold prices, oil prices and the US stock market on a portfolio (these are my nightmares, yours may be different). Just like VaR, various stress testing techniques can also make assumptions that may not hold true and may also have inherent logic limits. By using a wide range of stress test models and parameters, as with VaR, you can see a very broad range of potential downside outcomes in one graph.



I have made repeated references to the term **“broad”**. My focus on broad goes back to my lack of confidence in narrowly selecting the “correct” model or parameter-set for any particular portfolio or time. By plotting the downside projections from a wide range of VaR or stress test scenarios on one page, my hope is that my actual downside outcomes in the future will fall somewhere within the range of the extremes on the page. The theory here is that if I selected models that make meaningfully different assumptions about the data and are run with a wide range of parameters, then a broad view is much safer than a narrow one.

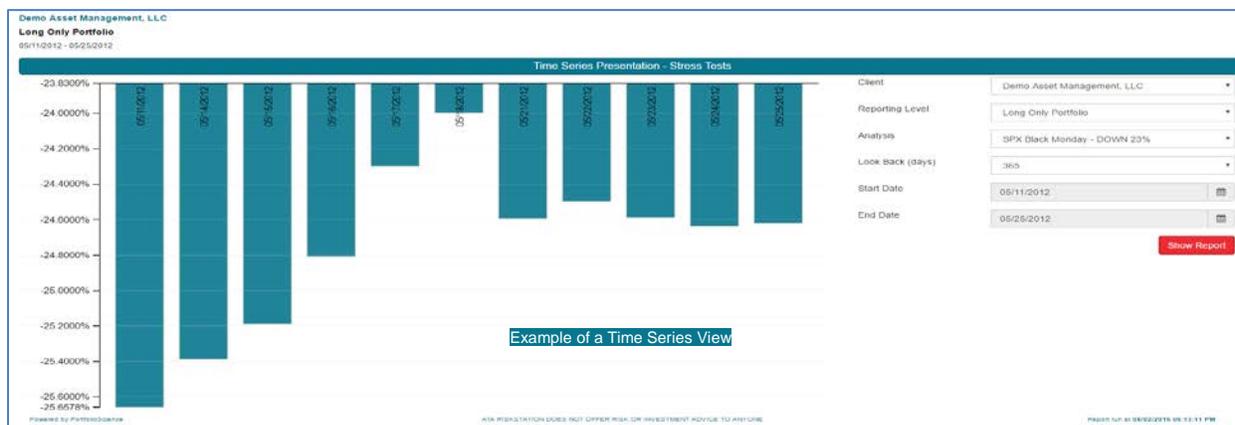
## Risk Patterns Viewed Over Time

While seeing a portfolio’s risk modeled on a daily basis as I have described above is very useful, I also find that placing today’s risk numbers in context of history can also be extremely helpful. A real life example may help illustrate why a time-series view can add value. In late July 2012, my wife and I were on vacation in Prague, enjoying breakfast in our

hotel room. I made the mistake of tuning the television to a financial channel which was reporting a big stock market rally on that day. The prior week Mario Draghi (president of the European Central Bank) had uttered the following words:

*“Within our mandate, the ECB is ready to do whatever it takes to preserve the euro,” he said, adding: “believe me, it will be enough.”*

Those words were intended to calm the markets but they had the opposite effect on me. I knew that one of my investment managers was carrying some significant call spread positions on the US stock market and a sudden surge in equity prices was not the ideal environment for that strategy. I logged into my prime broker’s website to see the expected red ink on the page – not fun. I then logged into my risk platform and looked not only at today’s risk projections but also at the trend of those projections over time. I quickly saw that



Example of a Time Series View

nothing in that particular day's losses was remotely outside the VaR risk projections and the stress tests that we had been running for months on that account. I showed all this to my wife who simply rolled her eyes and went back to her breakfast because, while today's losses were not fun, there was no reason to panic. We were both prepared. I really meant my earlier comment about the importance of stakeholder alignment and the need to keep emotions in check during the bumpy stuff. We then turned off the television and hopped on a motorcycle to explore the countryside of the Czech Republic.

## Conclusions

Like cup holders in our cars, we can't imagine how we survived all those years without them. That is how I feel about the risk platform that I developed for myself and recently rolled out as

a cloud-based service for external clients. In my view, many families, pension plans, endowments, foundations and other owners of significant investment portfolios spend most of their time trying to understand the return side of the investment equation. Through freely available tools on the Internet or commercially available software solutions from vendors, it is very easy to find data, to review track records and to optimize theoretical portfolios by slicing and dicing return streams many different ways. At the end of the day however, if investment decisions are primarily based on analyzing return streams, I believe that investors will be missing some potentially powerful insights by not taking a closer look at their risks.

Understanding portfolio risk no longer has to be difficult, time consuming or expensive – it just needs to become a priority. Education, confidence and alignment are valuable benefits from thinking about risk in a more structured way.

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